

WHAT IS CLAIMED IS:

1. An endovascular graft for treating vasculature, comprising:
a graft component including a plurality of reinforced holes;
an expandable frame positioned longitudinally separated from the graft
component; and

5 an attaching structure that attaches the expandable frame to the graft
component by engaging at least one of the plurality of reinforced holes.

2. The graft of claim 1, the graft component further comprising a
grommet associated with at least one of the plurality of holes.

3. The graft of claim 1, wherein the attaching structure is a loop of
sutures.

4. The graft of claim 1, wherein the attaching structure is a strut extending
from the expandable frame.

5. The graft of claim 4, the strut further comprising a hook.

6. The graft of claim 4, the strut further comprising a hanger.

7. The graft of claim 6, the hanger further comprising a suture hole.

8. The graft of claim 6, the hanger further comprising a sharp distal end and a widened cutout.

9. An endovascular graft for treating vasculature, comprising:
a graft component having an opening and a plurality of structures extending longitudinally beyond the opening;

an expandable frame;

5 an attaching structure that attaches the expandable frame to the graft component by engaging at least one of the plurality of structures extending longitudinally beyond the opening; and

an anchoring structure that anchors the expandable frame to the lumen wall;

10 wherein the expandable frame is longitudinally separated from the graft component.

10. The graft of claim 9, at least one of the plurality of structures extending beyond the opening is in the form of a tab.

11. The graft of claim 10, wherein the tab is formed as part of the graft component.

12. The graft of claim 10, wherein the tab is formed by cutting one of the plurality of structures extending beyond the opening and folding the graft component material back.

13. The graft of claim 10, wherein the tab is folded over a portion of the attaching structure.

14. The graft of claim 10, the tab further comprising double layers of material.

15. The graft of claim 10 wherein the tab is reinforced by sutures.

16. The graft of claim 9, at least one of the plurality of structures extending beyond the opening includes a patch.

17. The graft of claim 9, the attaching structure further comprising a terminal end including a bulb.

18. The graft of claim 9, the attaching structure further comprising an eyelet.

19. The graft of claim 18, the eyelet having a cross - section that is round.

20. The graft of claim 18, the attachment structure further comprising a barrier between the eyelet and graft component, the barrier having a cross -section that is round.

21. The graft of claim 20, wherein the barrier is a washer.

22. The graft of claim 20, wherein the barrier is a coating applied to the eyelet.

23. The graft of claim 20, wherein the barrier is a grommet.

24. The graft of claim 20, wherein the barrier is an O - ring.

25. The graft of claim 9, the attaching structure further comprising spoke - like radial patterns of suture loops and running stitches with multiple suture knots.

26. The graft of claim 9, wherein the plurality of structures extending beyond the opening of the graft component define a scalloped configuration.

27. The graft of claim 9, the graft further comprising a bent wire attached adjacent the opening to the graft component.

28. The graft of claim 9, the graft component further comprising reinforced holes.
29. The graft of claim 9, wherein the main graft component is bifurcated.
30. The graft of claim 9, wherein the expandable frame is self-expanding.
31. The graft of claim 9, wherein the anchoring structure comprises a hook or barb.
32. The graft of claim 31, wherein the hook or barb is curved.
33. The graft of claim 31, wherein the hook or barb is tapered.
34. The graft of claim 31, wherein the hook or barb is bidirectional.
35. The graft of claim 31, the hook or barb further comprising a tail.
36. The graft of claim 31, the hook or barb cut at the edge of a stent strut of the anchoring structure.

37. The graft of claim 31, the hook or barb located near the junction of stent struts of the anchoring structure.

38. The graft of claim 9, the graft component further comprising reinforcing structures.

39. The graft of claim 38, wherein the reinforcing structures are self-expanding.

40. The graft of claim 38, wherein a reinforcing structure is in the form of a stent.

41. The graft of claim 38, wherein a reinforcing structure is on an exterior of the graft component.

42. The graft of claim 38, wherein a reinforcing structure is on an interior of the graft component.

43. The graft of claim 42, wherein a reinforcing structure comprises a hook or barb.

44. The graft of claim 43, wherein the hook or barb is curved.

45. The graft of claim 43, wherein the hook or barb is tapered.
46. The graft of claim 43, wherein the hook or barb is bidirectional.
47. The graft of claim 43, the hook or barb further comprising a tail.
48. The graft of claim 43, the hook or barb cut at the edge of a stent strut of the reinforcing structure.
49. The graft of claim 43, the hook or barb located near the junction of stent struts of the reinforcing structure.
50. The graft of claim 38, further comprising at least one cuff attached to a reinforcing structure.
51. The graft of claim 38, wherein a reinforcing structure has a first end portion and a second end portion and further comprising a first cuff configured at the first end portion and a second cuff configured at the second end portion.
52. The graft of claim 51, wherein one of the cuffs is placed about an interior of the reinforcing structure.

53. The graft of claim 51, wherein one of the cuffs is placed about an exterior of the reinforcing structure.

54. The graft of claim 38, a reinforcing structure further including longitudinally offset connecting points.

55. The graft of claim 38, a reinforcing structure further including endpoints that are larger than a strut thickness of the reinforcing structure.

56. The graft of claim 9, further comprising a plurality of radiopaque markers.

57. The graft of claim 9, further comprising at least one cuff attached to the expandable frame.

58. The graft of claim 9, wherein the expandable frame has a first end portion and a second end portion and further comprising a first cuff configured at the first end portion and a second cuff configured at the second end portion.

59. The graft of claim 58, wherein one of the cuffs is placed about an interior of the expandable frame.

60. The graft of claim 58, wherein one of the cuffs is placed about an exterior of the expandable frame.

61. The graft of claim 58, the expandable frame further including longitudinally offset connecting points.

62. The graft of claim 9, the expandable frame further including endpoints that are larger than a strut thickness of the expandable frame.

63. The graft of claim 9, the graft component further comprising an anti-twist wire.

64. The graft of claim 9, wherein a portion of the anti-twist wire is configured exterior to the graft component.

65. The graft of claim 9, wherein the graft component is bifurcated and further comprises a tether connecting limb portions of the graft component together.

66. The graft of claim 9, wherein the graft component is bifurcated and includes a leg having a bell-bottom configuration.

67. The graft of claim 66, further comprising a stent configured on an exterior of the bell-bottom portion.

68. The graft of claim 66, further comprising a stent configured in an interior of the bell-bottom portion.

69. The graft of claim 66, wherein a portion of the bell-bottom portion furthest from a second leg of the graft component includes an oval-shaped bell-bottom.

70. The graft of claim 9, further comprising a system of variable sized radiopaque markers attached to the graft component.

71. The graft of claim 70, wherein one of the system of radiopaque markers is a band extending around a circumference of the graft component.

72. A method of treating a patient's vasculature, comprising:

placing a graft within an artery, the graft having a graft component and a first expandable frame attached to but longitudinally separated from the graft component; and

5 placing a second expandable frame within the artery, the second frame placed at least partially within the graft component;

whereby the second expandable frame provides a seal between the graft component and the artery.

73. The method of claim 72, wherein the second expandable frame comprises a hook or barb.

74. The method of claim 73, wherein the hook or barb is curved.

75. The method of claim 73, wherein the hook or barb is tapered.

76. The method of claim 73, wherein the hook or barb is bidirectional.

77. The method of claim 73, the hook or barb further comprising a tail.

78. The graft of claim 73, the hook or barb cut at the edge of a stent strut of the expandable frame.

79. The graft of claim 73, the hook or barb located near the junction of stent struts of the expandable frame.

80. The method of claim 72, further comprising at least one cuff attached to the second expandable frame.

81. The method of claim 72, wherein the second expandable frame has a first end portion and a second end portion and further comprising a first cuff configured at the first end portion and a second cuff configured at the second end portion.

82. The method of claim 81, wherein one of the cuffs is placed about an interior of the second expandable frame.

83. The method of claim 81, wherein one of the cuffs is placed about an exterior of the second expandable frame.

84. The method of claim 72, the second expandable frame further including longitudinally offset connecting points.

85. The method of claim 72, the second expandable frame further including endpoints that are larger than a strut thickness of the second expandable frame.